

Femtosecond & Picosecond Second Harmonic Generation

Frequency Doubler for Ti:Sapphire Lasers



ORIA BLUE



KEY FEATURES

- Output Ports:
 - 1) SHG: 340 - 540 nm (18518 - 29411 cm⁻¹)
 - 2) Undepleted Pump: 680 - 1080 nm (9259 - 14705 cm⁻¹)
- Simultaneous Outputs: All
- Average Power: >1.2 W
- Pulse Duration Models:
 - Femtosecond <180 fs
 - Picosecond <5 ps
- Repetition Rate: 80 MHz

APPLICATIONS

- Linear & Non-Linear Spectroscopy & Microscopy. (SHG, THG, Two-Photon, Multiphoton)
- Plasmonics.
- Pump-Probe Spectroscopy.
- Raman Spectroscopy & Microscopy. (CARS, SRS)
- Time-Resolved Spectroscopy & Microscopy. (FLIM, TR-FRET, TCSPC)

Description

The ORIA BLUE offers an innovative, easy-to-use and reliable doubling unit that efficiently converts the near-IR emission of mode-locked ultrafast Ti:Sapphire lasers [typically 680–1100 nm (9259 - 14705 cm⁻¹)] into the near-UV and visible spectrum [340–540 nm (18518 - 29411 cm⁻¹)].

Based on novel nonlinear optical technology, the ORIA BLUE doubler provides exceptional beam quality, combined with high conversion efficiency and reduced pulse broadening.

The ORIA BLUE is available in both manual and automated hands-free versions and is compatible with standard femtosecond and picosecond MHz repetition rate Ti:Sapphire oscillators. Installation is straightforward and alignment-free.

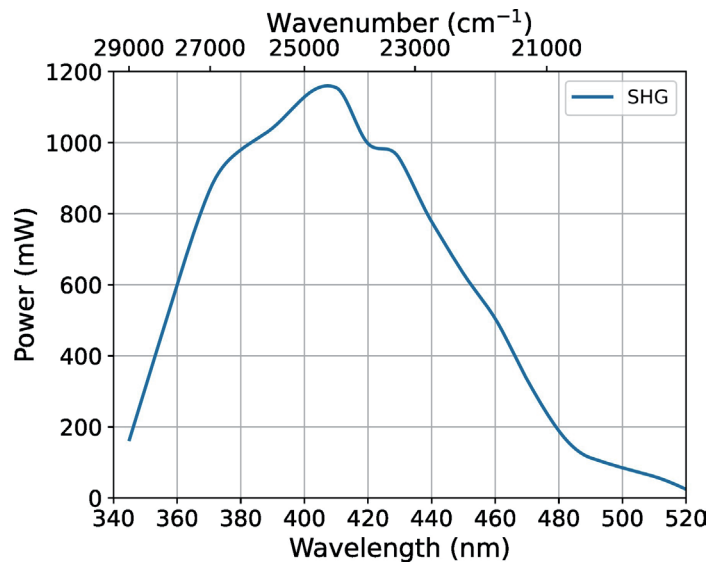
This compact unit provides an excellent tool for a wide range of applications requiring femtosecond and picosecond light pulses at MHz repetition rates.

Specifications⁽¹⁾

Output Characteristics	Pumped with Ti:Sapphire oscillator, 2.8 W at 820 nm, 80 MHz, 90 fs [690 - 1040 nm (9615 - 14492 cm ⁻¹)]	Pumped with Ti:Sapphire oscillator, 3.3 W at 820 nm, 80 MHz, 140 fs [680 - 1080 nm (9259 - 14705 cm ⁻¹)]
Tuning Range	345 - 520 nm (19230 - 28985 cm ⁻¹)	340 - 540 nm (18518 - 29411 cm ⁻¹)
Average Power	> 1.2 W at 410 nm (24390 cm ⁻¹)	> 1.2 W at 410 nm (24390 cm ⁻¹)
Pulse Width	< 150 fs at 860 nm (11627 cm ⁻¹)	< 180 fs at 860 nm (11627 cm ⁻¹)
Spatial Mode	TEM ₀₀	TEM ₀₀
Repetition Rate	80 MHz	80 MHz
Operation	Manual and fully automated versions	Manual and fully automated versions
Size (W x L x H)	200 x 364 x 155 mm (7.9 x 14.3 x 6.1 inch)	200 x 364 x 155 mm (7.9 x 14.3 x 6.1 inch)

Notes: (1) Specifications are subject to change without notice.

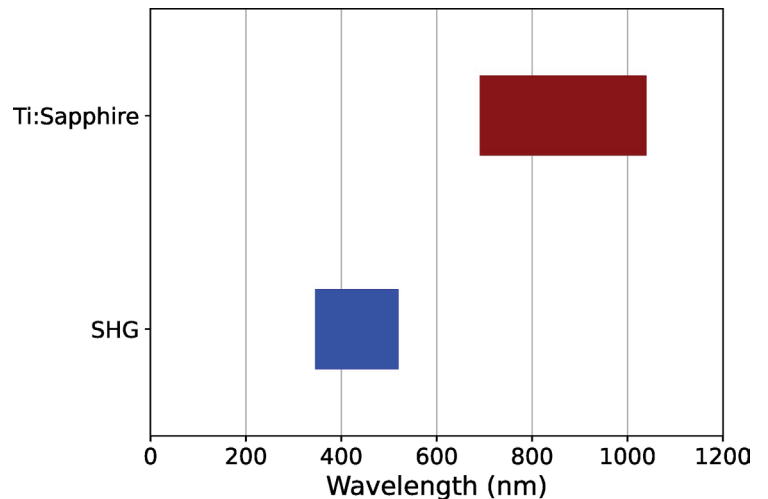
ORIA BLUE Typical Tuning Curve



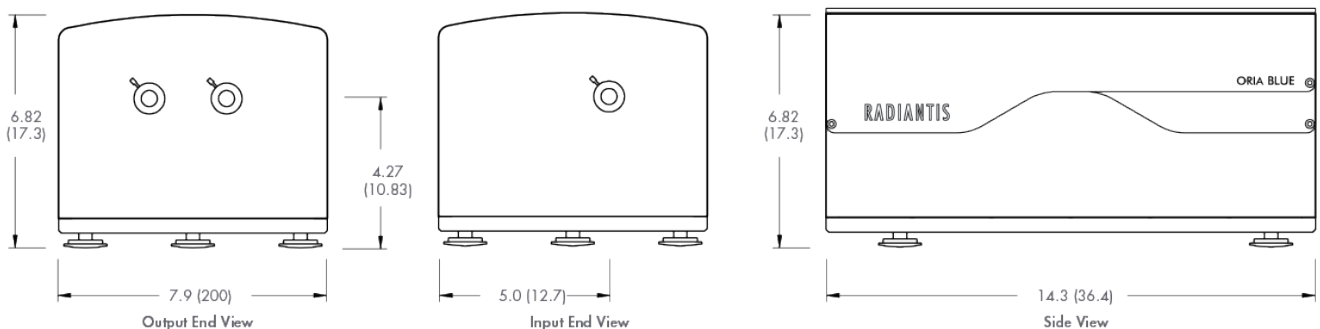
ORIA BLUE Wavelength Coverage

Output Ports

ORIA BLUE generates two synchronised beams that simultaneously provide the converted output in the near-UV and visible spectrum [340-540 nm (18518 - 29411 cm⁻¹)] and the unconverted fundamental in the IR spectrum [680-1100 nm (9259 - 14705 cm⁻¹)]. The full spectrum is covered by a single set of optics for maximum flexibility.



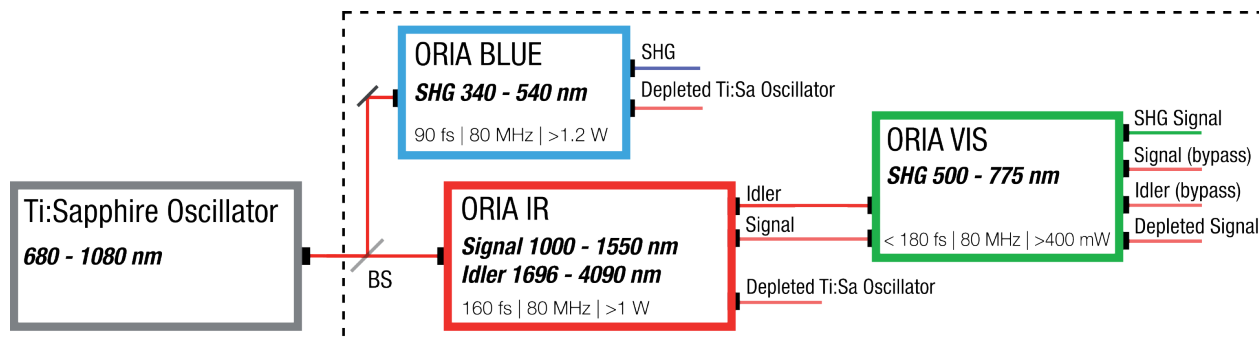
Dimensions



Notes: Dimensions in cm

ORIA Series

Ti:Sapphire Wavelength Extensions



- Broad wavelength tuning across 340 - 4090 nm
- (2444 - 29411 cm⁻¹)
- Fully automated, hands-free tuning for simplified use
- Simultaneous pump, signal and idler outputs

Related Products

ORIA IR

Femtosecond IR OPO



Key Features:

- Output Ports:
 - 1) Signal: 1000 - 1580 nm (6329 - 10000 cm⁻¹)
 - 2) Idler: 1696 - 4090 nm (2444 - 5890 cm⁻¹)
 - 3) Pump Bypass: 680 - 1080 nm (9259 - 14705 cm⁻¹)
- Simultaneous Outputs: All. 3) with limited range
- Average Power: >1 W at peak of the range
- Pulse Duration: Signal 160 fs typ.
Idler 96 fs typ.
- Repetition Rate: 80 MHz

ORIA VIS

Femtosecond Second Harmonic Generator



Key Features:

- Output Ports:
 - 1) SHG: 495 - 775 nm (12903 - 20202 cm⁻¹)
 - 2) Pump (OPO) Bypass Signal: 1000 - 1580 nm (6329 - 10000 cm⁻¹)
 - 3) Pump (OPO) Bypass Idler: 1696 - 4090 nm (2444 - 5890 cm⁻¹)
 - 4) Undepleted Pump (OPO): 1000 - 1580 nm (6329 - 10000 cm⁻¹)
- Simultaneous Outputs: 1), 3) and 4)
- Average Power: >400 mW
- Pulse Duration: <180 fs
- Repetition Rate: 80 MHz